

OKADA, et al., 10/670,355  
27 November 2006 Amendment  
Responsive to 25 August 2006 Office Action

500.43169X00 / W1233-01EF  
Page 3

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

1.-9. (Cancelled)

10. (New) An optical switch for switching communication light beams input from first external units through input-side optical fibers and propagating to second external units through output-side optical fibers,

said optical switch comprising an input-side lens array, a primary mirror array, a secondary mirror array, an output-side lens array, light emitting elements and light receiving elements,

said input-side lens array including a first plurality of input-side lenses adapted to couple to said input-side optical fibers and a second plurality of input-side lenses on which light beams are incident from said light emitting elements,

said primary mirror array including a first plurality of moving mirrors on which light beams passing through said first plurality of input-side lenses are incident,

said secondary mirror array including a second plurality of moving mirrors on which light beams passing through said first plurality of input-side lenses are incident,

said primary mirror array further including primary measuring mirrors on which light beams passing through said second plurality of input-side lenses are incident,

said secondary mirror array further including secondary measuring mirrors on which light beams passing through said primary measuring mirrors are incident,

OKADA, et al., 10/670,355  
27 November 2006 Amendment  
Responsive to 25 August 2006 Office Action

500.43169X00 / W1233-01EF  
Page 4

said output-side lens array including a second plurality of output-side lenses on which light beams passing through said second plurality of moving mirrors are incident and adapted to couple to said output-side optical fibers, and a second plurality of output-side lenses on which light beams passing through said secondary measuring mirrors are incident and adapted to couple to said light receiving elements, and

said optical switch further comprising a mirror control unit for correcting control values for controlling angles at which said first plurality of moving mirrors and said second plurality of moving mirrors are moved, based on signals from said light receiving elements which receive light beams passing through said second plurality of output-side lenses.

11. (New) The optical switch according to claim 10, wherein said mirror control unit determines a change of a relative position between said input-side lens array and said primary mirror array, a change of a relative position between said primary mirror array and said secondary mirror array, or a change of a relative position between said secondary mirror array and said output-side lens array, based on the signals from said light receiving elements, and corrects the control values of angles at which said first plurality of moving mirrors and said second plurality of moving mirrors are moved, on the basis of the determined relative position change.

12. (New) The optical switch according to claim 10, wherein said primary measuring mirrors are disposed at four corners of said primary mirror array, and said secondary measuring mirrors are disposed at four corners of said secondary mirror array.

OKADA, et al., 10/670,355  
27 November 2006 Amendment  
Responsive to 25 August 2006 Office Action

500.43169X00 / W1233-01EF  
Page 5

13. (New) An optical switch for switching communication light beams between ones of input-side optical fibers and output-side optical fibers,

said optical switch comprising an input-side lens array, a primary mirror array, a secondary mirror array, an output-side lens array, measuring light emitting/receiving pairs for outputting/receiving measuring light beams between an input side and output side of said optical switch,

said input-side lens array including a plurality of input-side lenses of a same type, wherein a major sub-plurality of said input-side lenses are adapted to communicate said communication light beams with said input-side optical fibers, and a minor sub-plurality of said input-side lenses are adapted to communicate said measuring light beams with said measuring light emitting/receiving pairs,

said primary mirror array including a plurality of primary moving mirrors of a same type, wherein a major sub-plurality of said primary moving mirrors are adapted to communicate said communication light beams with said major sub-plurality of said input-side lenses, and a minor sub-plurality of said primary moving mirrors are adapted to communicate said measuring light beams with said minor sub-plurality of said input-side lenses,

said secondary mirror array including a plurality of secondary moving mirrors of a same type, wherein a major sub-plurality of said secondary moving mirrors are adapted to communicate said communication light beams with said major sub-plurality of said primary moving mirrors, and a minor sub-plurality of said secondary moving mirrors are adapted to communicate said measuring light beams with said minor sub-plurality of said primary moving mirrors,

OKADA, et al., 10/670,355  
27 November 2006 Amendment  
Responsive to 25 August 2006 Office Action

500.43169X00 / W1233-01EF  
Page 6

said output-side lens array including a plurality of output-side lenses of a same type, wherein a major sub-plurality of said output-side lenses are adapted to communicate said communication light beams with said major sub-plurality of said secondary moving mirrors and with said output-side optical fibers, and a minor sub-plurality of said output-side lenses are adapted to communicate said measuring light beams with said minor sub-plurality of said secondary moving mirrors and with said measuring light emitting/receiving pairs,

said optical switch further comprising a mirror control unit for correcting control values for controlling angles at which said plurality of primary moving mirrors and said plurality of secondary moving mirrors are moved, based on measuring light beam signals from said measuring light emitting/receiving pairs.

14. (New) The optical switch according to claim 13, wherein said mirror control unit determines a change of a relative position between said input-side lens array and said primary mirror array, a change of a relative position between said primary mirror array and said secondary mirror array, or a change of a relative position between said secondary mirror array and said output-side lens array, based on said measuring light beam signals from said measuring light emitting/receiving pairs, and corrects control values of angles at which said plurality of primary moving mirrors and said plurality of secondary moving mirrors are moved, on a basis of the determined relative position change.

15. (New) The optical switch according to claim 13, wherein ones of said minor sub-plurality of said primary moving mirrors are disposed at four corners of

OKADA, et al., 10/670,355  
27 November 2006 Amendment  
Responsive to 25 August 2006 Office Action

500.43169X00 / W1233-01EF  
Page 7

said primary mirror array, and ones of said minor sub-plurality of said secondary moving mirrors are disposed at four corners of said secondary mirror array.

16. (New) An optical switch for switching communication light beams between ones of first-side optical fibers and second-side optical fibers,

said optical switch comprising a first-side lens array, a first-side mirror array, a second-side mirror array, an second-side lens array, measuring light emitting/receiving pairs for outputting/receiving measuring light beams between a first side and second side of said optical switch,

said first-side lens array including a plurality of first-side lenses of a same type, wherein a major sub-plurality of said first-side lenses are adapted to communicate said communication light beams with said first-side optical fibers, and a minor sub-plurality of said first-side lenses are adapted to communicate said measuring light beams with said measuring light emitting/receiving pairs,

said first-side mirror array including a plurality of first-side moving mirrors of a same type, wherein a major sub-plurality of said first-side moving mirrors are adapted to communicate said communication light beams with said major sub-plurality of said first-side lenses, and a minor sub-plurality of said first-side moving mirrors are adapted to communicate said measuring light beams with said minor sub-plurality of said first-side lenses,

said second-side mirror array including a plurality of second-side moving mirrors of a same type, wherein a major sub-plurality of said second-side moving mirrors are adapted to communicate said communication light beams with said major sub-plurality of said first-side moving mirrors, and a minor sub-plurality of said

OKADA, et al., 10/670,355  
27 November 2006 Amendment  
Responsive to 25 August 2006 Office Action

500.43169X00 / W1233-01EF  
Page 8

second-side moving mirrors are adapted to communicate said said measuring light beams with said minor sub-plurality of said first-side moving mirrors,

said second-side lens array including a plurality of second-side lenses of a same type, wherein a major sub-plurality of said second-side lenses are adapted to communicate said communication light beams with said major sub-plurality of said second-side moving mirrors and with said second-side optical fibers, and a minor sub-plurality of said second-side lenses are adapted to communicate said measuring light beams with said minor sub-plurality of said second-side moving mirrors and with said measuring light emitting/receiving pairs,

said optical switch further comprising a mirror control unit for correcting control values for controlling angles at which said plurality of first-side moving mirrors and said plurality of second-side moving mirrors are moved, based on measuring light beam signals from said measuring light emitting/receiving pairs.

17. (New) The optical switch according to claim 16, wherein said mirror control unit determines a change of a relative position between said first-side lens array and said first-side mirror array, a change of a relative position between said first-side mirror array and said second-side mirror array, or a change of a relative position between said second-side mirror array and said second-side lens array, based on said measuring light beam signals from said measuring light emitting/receiving pairs, and corrects control values of angles at which said plurality of first-side moving mirrors and said plurality of second-side moving mirrors are moved, on the basis of the determined relative position change.

OKADA, et al., 10/670,355  
27 November 2006 Amendment  
Responsive to 25 August 2006 Office Action

500.43169X00 / W1233-01EF  
Page 9

18. (New) The optical switch according to claim 16, wherein ones of said minor sub-plurality of said first-side moving mirrors are disposed at four corners of said first-side mirror array, and ones of said minor sub-plurality of said second-side moving mirrors are disposed at four corners of said second-side mirror array.